

IOWA STATE UNIVERSITY

Vice President for Research and Economic Development

Iowa State University

System for

Economic Development

Presented to:
Economic Development Appropriations Subcommittee

Presented by: John Brighton, Ph.D.
Vice President for Research & Economic Development
05 February 08

Economic Development Objectives for Iowa

- New business created based on ISU technology
- Sales and employees of companies created with or utilizing ISU technology
- Product and process improvements at companies based on ISU technology
- Technologies licensed to companies with an Iowa presence
- Collaborative research projects with Iowa companies

What Does It Take?

- People
- Culture Change
- Tools
- Infrastructure

Faculty Must Be the Best

- 1/4 of university budget comes from competitive research grants
- Leading edge of science knowledge (Ph.D.)
- Entrepreneurial – ideas, risks, can get it done
- Can communicate

Changing Culture

- Individual \longrightarrow Working in Teams
- Adding knowledge \longrightarrow Seeking Solutions
- Fundamental Sciences \longrightarrow Practical results
- Within University only \longrightarrow Working with
industry

Tools for Research and Economic Development

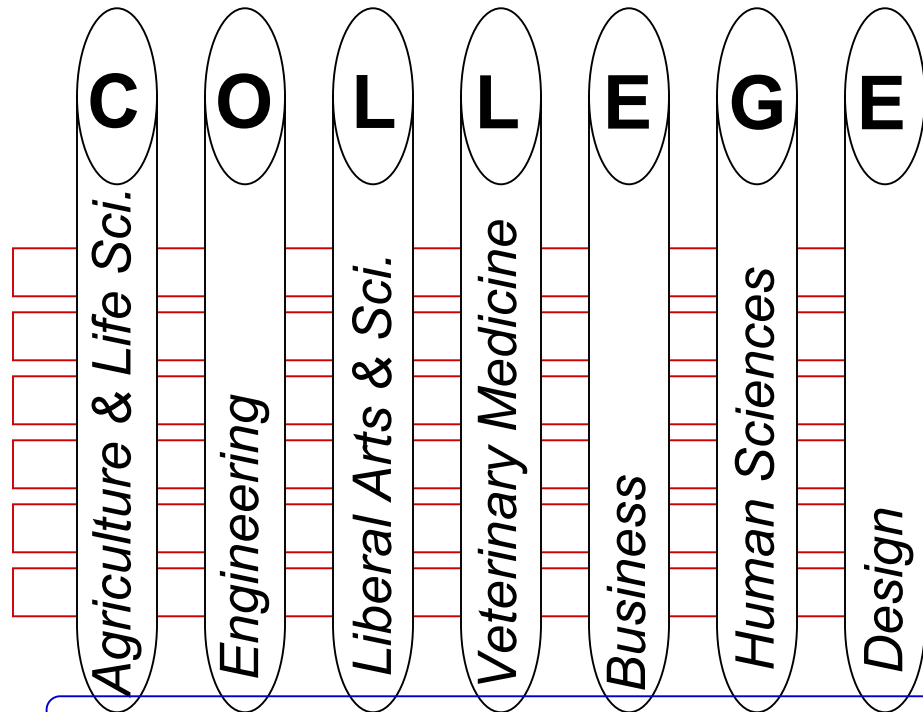
- Research and Development Instruments
- Atom Probe
- High Performance Computers
- DNA Sequencers

Research and Development Infrastructure

- College and Departments
- Interdisciplinary Centers and Institutes
- Research Park
- OIPTT and ISU Research Foundation

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Interdisciplinary Research

- 1962 *IPRT*
- 2001 *Plant Sciences Institute*
- 2006 *Nutrition & Wellness Center*
- 2007 *Bioeconomy Institute*
- 2007 *CyberInnovation Institute*
- 2007 *Neurotoxicology*

Sponsored Programs

ISU Research Foundation

Research Park, Pappajohn Ctr, SBDC

Instrumentation Facilities

Industry Assistance (CIRAS, IPRT, etc.)

Support Services

Infrastructure

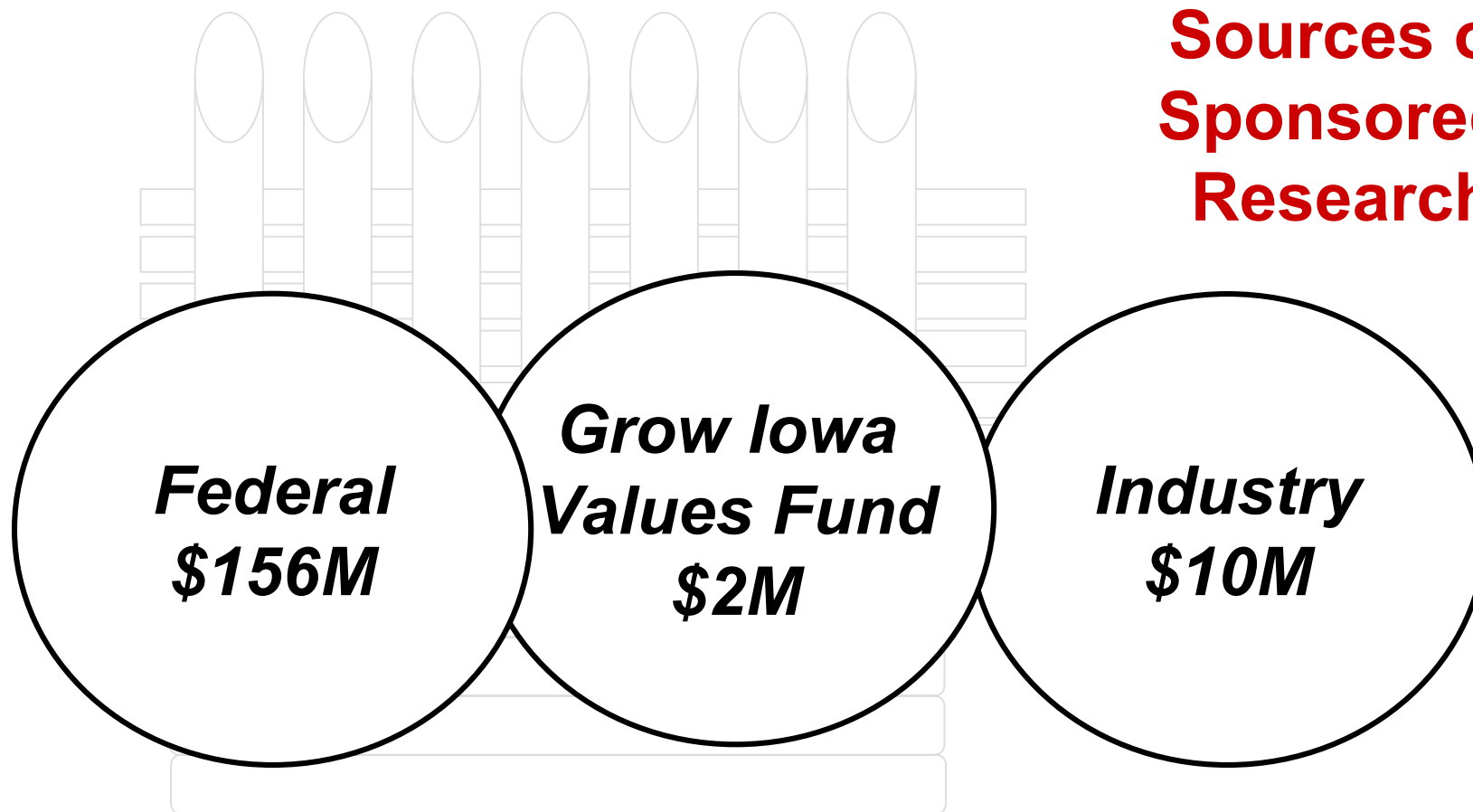
Centers and Institutes

- Ames DOE Laboratory
- Plant Sciences Institute
- Institute for Physical Research & Technology
- Bioeconomy Institute (N)
- CyberInnovation Institute (N)
- Center for Transportation Research & Education
- Institute for Social & Behavioral Research
- Center for Neurotoxicology Research (N)
- Nutrition & Wellness Research Center (N)
- Climate Science Center (P)

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Sources of Sponsored Research



Basic → **Applied** → **Commercialization**

Grow Iowa Values Fund Allocations

\$1.925M ISU annual budget

- \$600K infrastructure
- \$1.325M competitive research

GIVF: FY06–FY08 Competitive Research

- Total projects funded: 37
 - 2006/2007 Projects complete: 5
 - 2007/2008 Projects in-progress: 32
- Iowa Company Research Partners
 - 19 projects
 - 38 Iowa companies
- Iowa Startup Companies:
 - 18 projects
 - 12 companies

GIVF: Completed Projects

- Funding: \$491,000
 - Companies incorporated: 2 (+3 startups assisted)
 - Publications/Presentations: 27
 - New IP disclosures: 6 to date
 - External funding awarded: \$3,579,000* (+ \$2.1M pending)
-
- 18 projects scheduled complete June 2008

**This is in addition to the 1:1 cost share required for the program*

GIVF: Catilin, Inc.

Project:

- Refine/Engineer a system to deploy new catalyst technologies that significantly lower the cost of production of biodiesel and to convert glycerin to an industrial product, (PDO).

Outcomes:

- Incorporation of Catilin, Inc. and a staff with 4 full-time employees
- Secured **\$3.5M in venture capital** funding for Catilin
- Established laboratory at the Innovations Development Facility of the Plant Sciences Institute for scale-up synthesis of catalysts
- Established a collaboration with BECON to adapt the existing biodiesel pilot plant to use this new solid catalyst technology

GIVF: Ensoft

Project :

- Develop software tools for managing control software

Outcomes:

- Rockwell Collins original partner
- 200 copies have been licensed by 26 companies in 7 countries
- An additional 70 companies are evaluating; the majority of these are Fortune 500 companies
- Two major car manufacturers from Japan have come to Ames to meet company and to negotiate large scale purchases



Anumantha Kanthasamy
Founder, PK Biosciences

GIVF: PK Biosciences

Research interests and experience:
Parkinson's Disease, Neurotoxicology,
Neuropharmacology, Gene therapy,
Prion Diseases, Cardiac arrest-induced
neurological diseases

- Director, Iowa Center for Advanced Neurotoxicology (ICAN)
- Eugene and Linda Lloyd Chair in Neurotoxicology
- Chair, Interdepartmental Toxicology Graduate program
- Leading NIH funded Researcher in ISU
- Member and Chair of NIH review panels
- President and CEO, PK Biosciences Corporation
- Chaired Scientific Sessions at International and National Meetings
- Editorial board member of leading neurotoxicology journals and reviewer of many top scientific Journals
- Published > 100 articles in journals and meeting proceedings

Larger Impact

- Establishing partnerships with 38 Iowa companies
- Leveraging Federal funding for further research
- Supporting work that helped provide the foundation for a \$22.5M research award from Conoco Phillips



Kenneth Kirkland
Director

Office of Intellectual Property & Technology Transfer – ISU Research Foundation

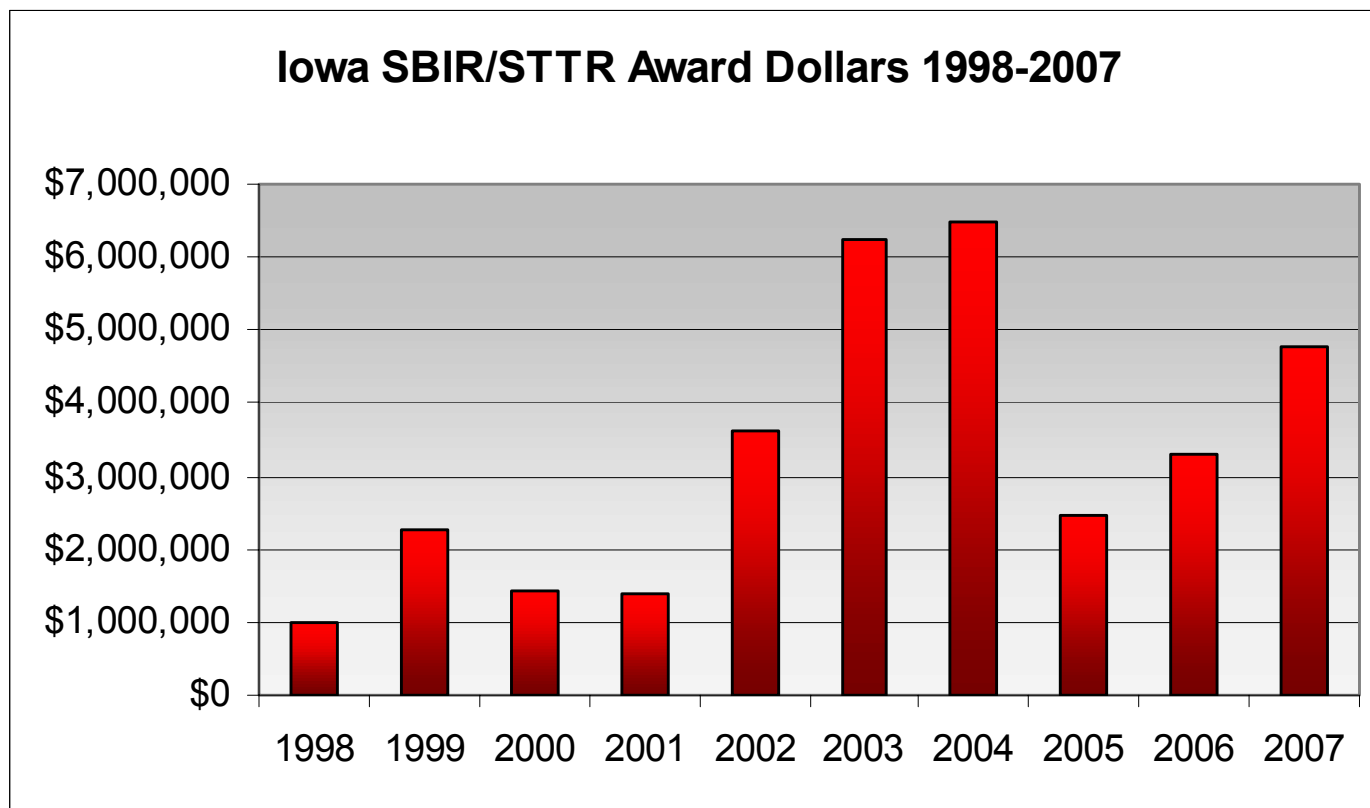
- Office that oversees patents & intellectual property
- 13 full time employees
- Assists faculty in IP disclosures
- Provides funding for patent searches
- Income provides support for faculty to do research
- Performance Data

Economic Development Impact: Licenses and Options

- 37 Iowa companies have options or licenses to 47 ISU technologies
 - \$38M sales (FY06)
- 25 Iowa companies have executed 145 license agreements for germplasm

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In FY07, fifteen Iowa companies won twenty-one new SBIR and STTR awards worth nearly \$4.8 million.

Research Funding from Iowa Companies

\$22.7M over the last 5 years

Summary: Investment in ISU for Success

- Continuation of **Grow Iowa Values Fund**
- Support for the **Bioeconomy Initiative**
- **Core Funding** to support university
 - Research Park & Pappajohn Center
 - IPRT Company Assistance
 - Small Business Development Center
 - CIRAS (Center for Industrial Research & Service)



Steve Carter
Director

ISU Research Park

Mission

ISURPC will provide an environment where established technology-related organizations and science and technology entrepreneurial ventures can develop and prosper in Iowa.

Budget

- State Appropriation \$143,000
- Grow Iowa Values Funds \$200,000
- Self Generated \$2.4 million



ISU Research Park – 7th largest research park located at a land grant university

ISU Research Park - Impact

- More than 325,000 sq. ft. of business and incubator space
- Has served 151 companies that currently employ more than 2000 people
- 42 current tenants that employ more than 600 people
- 40 companies have moved from the Research Park employing 1400 people



George Kraus, Director

IPRT Company Assistance

Mission

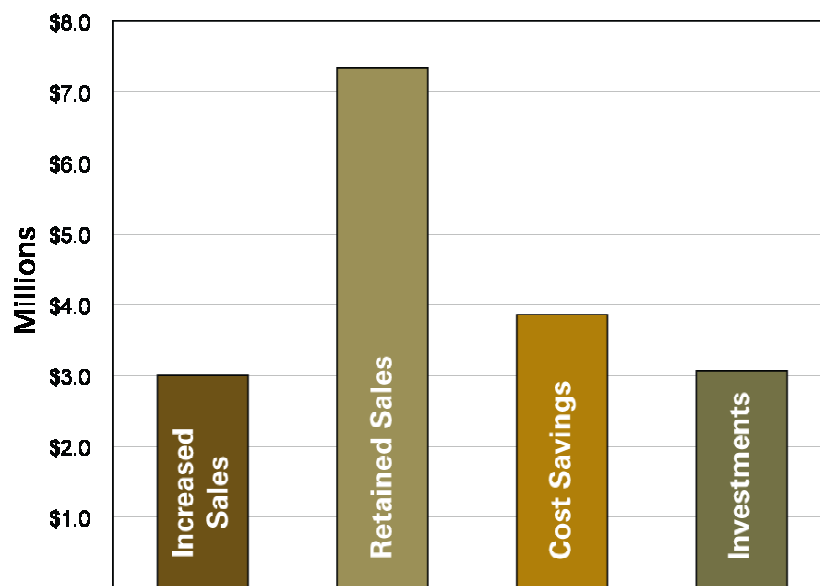
- **IPRT Company Assistance** is the industry outreach arm of IPRT (a federation of scientific research centers). It is a project-oriented, client-driven technical outreach program for companies and entrepreneurs in Iowa.
- Provide cost-sharing funds for research & development projects with Iowa industry and no-cost technical assistance for projects up to 40 hrs
- Each year IPRT Company Assistance:
 - Conducts approximately 120 no cost technical assistance projects
 - Provides cost-sharing funds for approximately 30 research & development project

FY07 IPRT Appropriation

- \$800,000

IPRT Boosts Iowa's Economy...

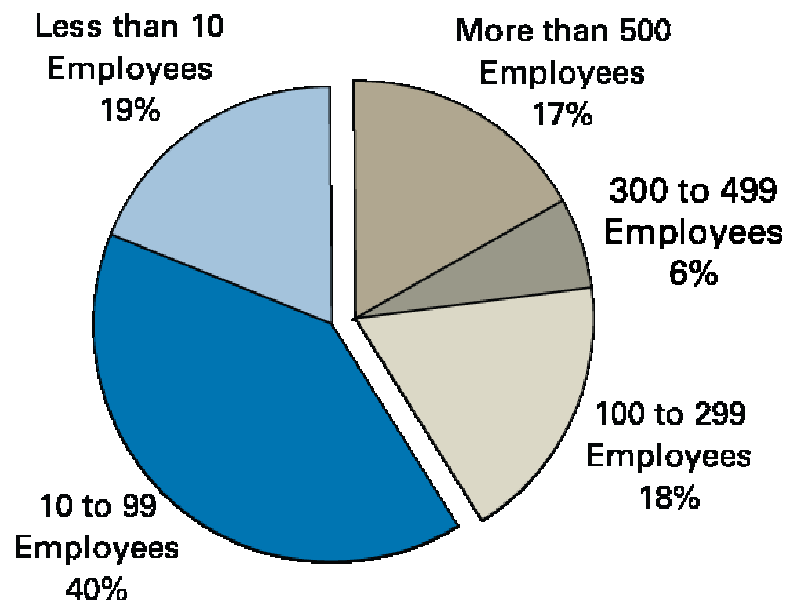
Estimated Economic Impact:
\$17.3 million per year



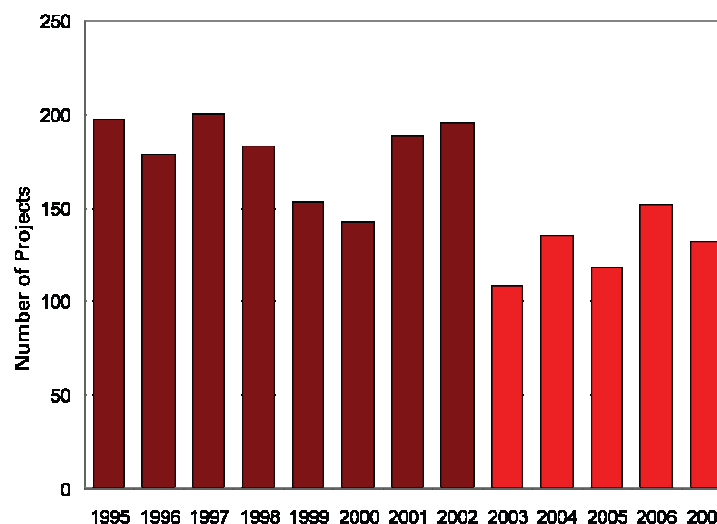
IPRT Company Assistance annual average impact over the past five years on sales (increased and retained), cost savings and investments, from surveys of Iowa companies assisted by IPRT.

...Helping Many Small Companies...

Almost 60 percent of the manufacturers assisted by IPRT in the last five years have 99 or fewer employees.



...But IPRT Could do More.

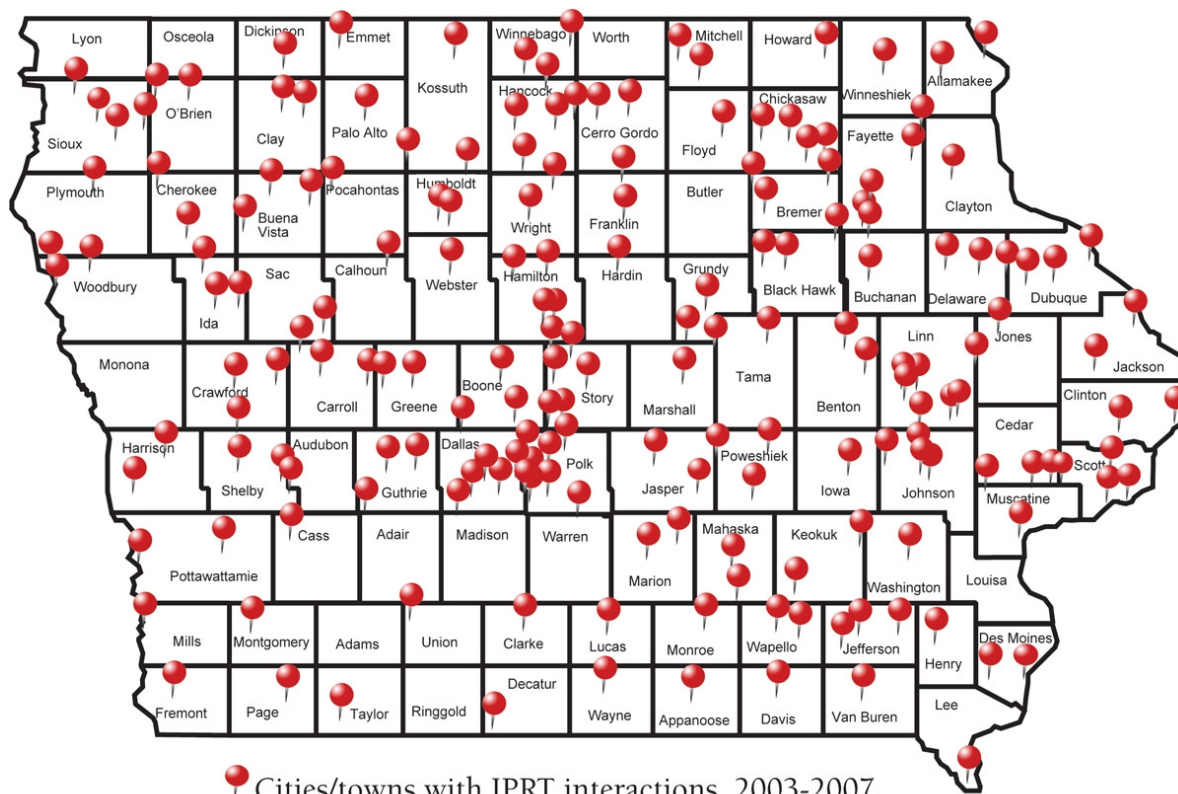


- IPRT economic development programs suffered a loss of over \$2.5 million at a time when the need for IPRT's expertise by Iowa companies was rapidly growing.
- More funds would allow us to leverage small companies' limited R&D resources on projects with significant economic impact — introduction of new products and enhancing manufacturing processes.
- Restoration of funding would allow us to solve more problems for Iowa companies, especially those involving coatings for wear and corrosion protection, which remain top unsolved problems.

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Our impact on the state of Iowa...



Reported Average Impact on Employment over the Past 5 Years

34 jobs per year

Estimated Average Impact Per Year over the Past 5 Years

\$17.3M per year in sales, cost-savings and investment changes

Five Year Average Satisfaction Rating

4.4 (1-5 scale; 5=highest)

55% Survey return rate

IPRT
works
for Iowa



Jim Heckmann,
State Director

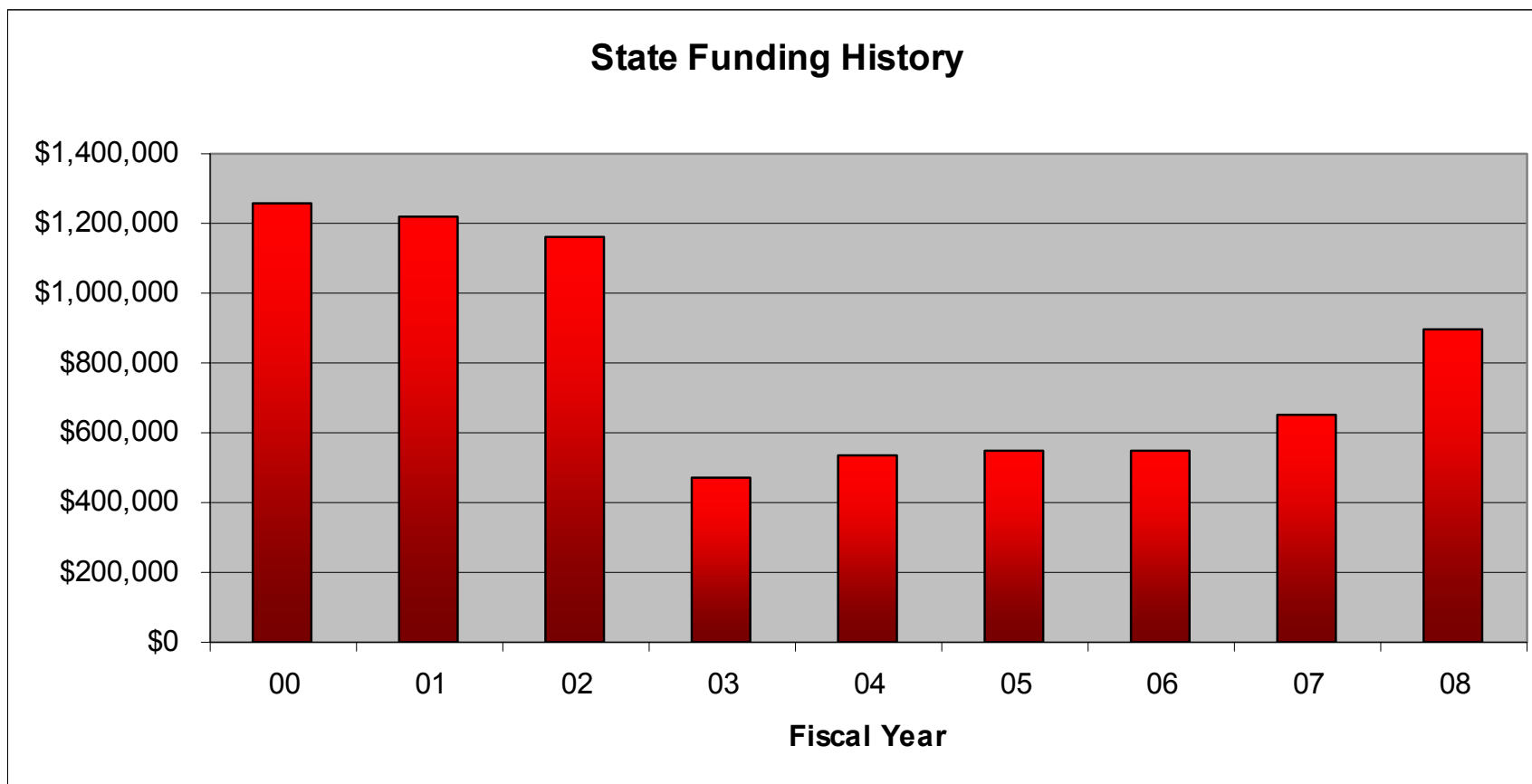
Small Business Development Centers

- The only nationally-accredited entrepreneurial development organization in Iowa.
- Affiliated with Iowa State University since 1981 through a contract with the Small Business Administration.
- Operates 15 regional centers strategically located throughout the state, 10 of which are hosted by community colleges.
- Since 1981, has spent 350,000 hours counseling over 60,000 clients.
- FY 2007 appropriation: \$900,000

Small Business Development Centers

- In 2007 alone, we spent 11,474 hours counseling 2,152 clients. These clients added or retained 824 jobs and raised over \$29 million in capital for their Iowa businesses.
- In the last three years, Iowa SBDC clients have:
 - Contributed \$11 million in new state taxes through increased sales and employment.
 - Increased firm gross revenues by \$240 million.
 - Added and retained 3,795 jobs.
 - Raised \$77 million in new capital.
 - Grown 3.5 times faster than the average Iowa business.
- **SBDC services contributed \$3.69 in new state taxes for every state tax dollar spent.**

Small Business Development Centers



Small Business Development Centers

Needs:

- Additional center counselors to meet client demand
- Additional center support staff so directors can spend more time with clients
- Develop partnerships to extend services and to reduce duplication
- Expand market research pilot to reach more clients

SBDC is requesting an additional \$250,000.

This investment will return an additional \$922,500 in new tax collections to the state treasury.

Small Business Development Centers

**SBDC services contribute \$3.69
in new state taxes
for every state tax dollar spent.**

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Ron Cox, Director



**Center for Industrial
Research and Service**

Mission

Improve the quality of life in Iowa by enhancing the performance of industry through research, education, and technology-based services.

In FY07 CIRAS and its partners

- Provided services to 577 distinct Iowa companies
- Provided educational information to 11,000 individuals

Budget

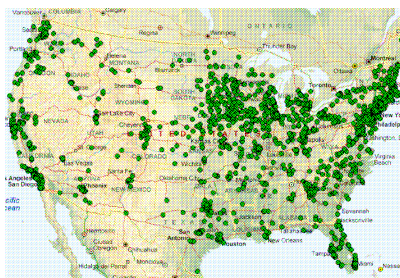
- Funded by ISU Extension; housed in College of Engineering
- State appropriation (Extension): \$1,751,000
- Leveraged funding: \$4,500,000

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Sample of Federal Programs



Biobased product
companies

DoC Manufacturing Extension Partnership

- Audience: 6,600 Iowa manufacturers – **21% of economy**
- Federal funds: \$1,859,000
- Services: Lean, quality, engineering, bioeconomy

USDA BioPreferred

- Audience: Manufacturers/distributors of biobased products
- Federal funds: \$1,826,000
- Services: Define products for preferred procurement
- 2,000 U.S. companies produce 12,000 biobased products
- 85 Iowa companies produce 353 biobased products

DoD Procurement Technical Assistance Program

- Audience: Iowa businesses
- Federal funds: \$277,328
- Services: Help companies expand markets by selling products/services to federal, state, and county government

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CIRAS Impact



CIRAS regional Account Manager mentors a small manufacturer

Partners

- ISU: Extension, IPRT, SBDC, VPR's office, College of Engineering, Meat Processing Lab, Engineering Distance Education, College of Ag and Life Sciences, Safety Training Instruction Research Center
- State: 15 Community Colleges, Iowa Department of Economic Development
- Federal: DoC/NIST, USDA, EDA, DoD

Company Reported Impact – FY07

- 1,658 jobs added or retained
- \$122 million new investments
- \$7 million costs saved/avoided
- \$62 million sales gained/retained
- **\$191 million** **direct impact on Iowa economy**

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